

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Hickman Creek Fish Kill Site
Removal Site Evaluation POLREP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: Removal Site Evaluation
Hickman Creek Fish Kill Site
Alexandria, Dekalb County, Tennessee

Latitude: 36.080853
Longitude: -86.031508

From: Chris Tripp, On-Scene Coordinator
Thru: Matt Taylor, Removal Operations Section
To: James W. Webster, Ph.D., ERRPPB
Date: December 8, 2021

1. Introduction

Site Number: C4K6 OU1
Response Authority: CERCLA
Response Type: EPA Order/Time-Critical Removal
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

1.1 Site Description

The Hickman Creek Fish Kill Site (Site) has an operating facility that produces, packages, and distributes skincare products, and includes adjacent properties and Hickman Creek in Alexandria, Dekalb County, Tennessee. The Site consists of the MARQ facility and piping leading from the facility to Hickman Creek. The MARQ facility has operated since 2018; before MARQ acquired the property, it was a local utility property and prior to that it was cheese-making facility under Kraft.

Initial U.S. Environmental Protection Agency involvement with the Site started with an EPA emergency response. The emergency response was initiated due to a fish kill discovered in Hickman Creek and subsequent discovery of a seep flowing into the creek, which was suspected to be the culprit of the fish kill. Initial sampling and analytical results from the seep area indicated the presence of acetone, formic acid, phenol, ethanol and an elevated chemical oxygen demand (COD).

1.2 Site Location

The release location is Hickman Creek, beginning near 330 Edgewood Street, Alexandria, Dekalb County, Tennessee.

The Site consists of an impacted reach of an inland freshwater stream and two nearby properties with piping that was suspected to be leaking underground and surfacing within the creek, which resulted in the death of aquatic flora and fauna downstream. The release occurred in Hickman Creek, near 330 Edgewood Street, Alexandria, Dekalb County, Tennessee. Hickman Creek is a freshwater stream that flows through Alexandria, Dekalb County, Tennessee. The creek is generally 20 to 30 feet wide and 6 to 12 inches deep within the town area; it flows to the Caney Fork River near Gordonsville, Smith County, Tennessee. Alexandria is a small town of approximately 1,000 residents. After exiting the town, the creek flows primarily through rural residential and agricultural properties.

The extent of downstream impact was estimated at 1.5 miles during the response. The nearest downstream surface water intake for drinking water is the Smith Utility District treatment plant on the Caney Fork River in Brush Creek, Tennessee.

1.3 Previous Investigations

At approximately 1430 hours on August 8, 2021, the Tennessee Department of Environment and Conservation (TDEC) contacted the EPA, requesting assistance with a fish kill in Hickman Creek. The Tennessee Wildlife Resources Agency (TWRA) responded and estimated that more than 2,000 fish and freshwater crustaceans were killed in a segment of Hickman Creek approximately 1 to 1.5 miles long. The EPA Region 4 Telephone Duty Officer mobilized an On-Scene Coordinator (OSC) and the Superfund Technical Assessment and Response Team (START) contractor for technical assistance, water quality monitoring, surface water sampling and source identification. A public drinking water intake was identified approximately 18 river miles downstream in the Caney Fork River; this information was forwarded to the TDEC State OSC for downstream notifications. In addition, the EPA reached out to the U.S. Department of Interior (DOI), which confirmed that there were no trust resources on the impacted segment of Hickman Creek.

The OSC discovered a seep flowing into Hickman Creek. Sampling and analytical of the seep water was performed. Analytical results indicated the presence of phenol, formic acid, acetone, and ethanol. Over the following weeks and months, investigations were initiated by the EPA and TDEC into the nearby MARQ facility and along the potential underground pathways causing the seep. It was suspected that the nearby MARQ facility could have been releasing the known contaminants into the seep water.

The OSC directed EPA contractors to install an intercept sump and sump pump 8 to 10 feet below ground surface at the seep pathway before the creek. The seep water was then pumped into frac tanks and properly transported for proper disposal. The OSC and EPA contractors developed a water treatment system to be installed at the intercept sump.

As of November 29, 2021, the OSC sent 370,000 gallons of impacted water for disposal that was pumped from the sump into frac tanks. The treatment system to be installed at the intercept sump that was not installed due to the improvement of the seep water quality, as was indicated by the laboratory analytical results of the seep water. Hazardous substances observed in laboratory analysis

of the seep into Hickman Creek during previous site investigations include but are not limited to acetone and formic acid. Additional information regarding previous investigations can be found in the Hickman Creek Fish Kill Pollution Reports at: response.epa.gov/hickmancreekfishkill.

2. Removal Site Evaluation

On August 19, 2021, the Site was assigned to a separate OSC to perform a Removal Site Evaluation (RSE). An initial site visit was performed on August 26, 2021, with OSC Chris Tripp, the EPA Environmental Response Team, and TDEC. Based on information gained during that visit, it was determined that the Site warranted further evaluation.

On September 22, 2021, the OSC, START contractors and subcontractors met on-site to perform a geophysical survey of the Site and install passive soil gas samplers. Additionally, preliminary dye trace samples were taken from Hickman Creek, on-site frac tanks, and the sump pump to analyze for fluorescein and constituents to potentially be used in a future quantitative dye trace. The geophysical survey was received by the OSC on October 12, 2021. The geophysical report included data and information that uncovered multiple areas of interest as to a potential source at the MARQ property and the property in between the MARQ facility and Hickman Creek. The geophysical report was shared with MARQ and TDEC.

MARQ sampling and analytical results from October 29, 2021 shared with the EPA also indicated that heavy metals (lead and mercury), phthalates, ethylene glycol, propylene glycol, styrene, and chloroform were present in the MARQ facility's process and waste waters.

Passive soil gas sampling and analytical results were received on November 5, 2021. These results indicated that low levels of ethanol and isopropanol were detected in surface soils. However, these results were inconsistent with the geophysical survey and did not provide applicable information that could contribute to a conclusion in the RSE investigation.

MARQ, initially unbeknownst to the EPA, began investigatory excavation efforts into the areas of interest highlighted in the geophysical report. The EPA OSCs traveled to the Site on November 18, 2021 to observe the MARQ excavation area. One of the excavated areas uncovered a manhole with liquid inside from the facility with the same odor as that of the seep area. The excavated area also contained several metal and clay pipes running from the facility towards the street/creek. Some of the piping had sludge material within the pipe and liquids within the piping from investigatory flushing by MARQ. From these findings, the OSC has drawn a conclusion in this RSE that this area of investigatory excavation at the MARQ facility and associated underground structures and piping is the source of contamination contributing to the contaminated seep area at Hickman Creek.

EPA analytical results were received on November 23, 2021, from sampling of the pipe sludge material, the sump and the seep on November 18, 2021. The seep analytical indicated the presence of acetone, lead and mercury at trace levels. The sludge material analytical indicated the presence of anthracene, benzo(a)pyrene, benzo(b)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzofuran, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, phenol, pyrene at trace levels and mercury above residential removal levels and lead above industrial removal levels..

The OSC consulted with the EPA Region 4 Scientific Support Section (SSS) on December 1, 2021, regarding the Site. SSS personnel stated that the mercury and lead levels present in the sludge material could present a potential threat to public health and the environment.

3. Recommendation

Mercury and lead are hazardous substances, listed in the Title 40 of the Code of Federal Regulations Section 302.4, as referred to in Section 101 (14) of CERCLA, as amended. The threat comes primarily from ecological (aquatic life) exposure to these hazardous substances. The 2021 EPA RSE for the Site demonstrated an endangerment eligibility relative to 40 CFR §300.415(b)(2); conditions at the Site pose the following threats to public health or welfare:

Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances, pollutants or contaminants;

The release to Hickman Creek is from a distinct location adjacent to the left-descending bank near 330 Edgewood Street. Constituents of the release may include acetone, formic acid, heavy metals, phthalates, ethylene glycol, propylene glycol, styrene, chloroform, phenol, and ethanol.

As a result of the release, dissolved oxygen was eliminated in the water, causing death to aquatic life, including fish, crustaceans, turtles, and plant life. Hickman Creek is used recreationally for fishing and for watering livestock. In addition, a surface water intake for drinking water is located downstream on the Cane Fork River.

MARQ facility piping contains sludge material with mercury and lead levels above EPA removal management levels.

High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;

The contaminants observed in all Site-related analytical are likely present in portions of piping and possibly in surrounding soils at the site. Contaminants may continue to migrate from piping and surrounding soils.

Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;

Fluctuations in rainfall and groundwater levels may cause contaminants bound in piping sections, other underground structures, and surrounding soils to migrate and be released into Hickman Creek.

The availability of other appropriate federal and state response mechanisms to respond to the release;

At this time, there are no identified State mechanisms that can respond fully to this incident with the resources needed to conduct the cleanup.

TDEC is involved with Site and can perform oversight of any necessary post-removal site controls.

Due to the threat and/or future threat to human health and the environment from these hazardous substances, the Site achieves removal eligibility based on the removal criteria listed above.

CONCUR: **James W. Webster** Digitally signed by James W. Webster
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Date: 2022.01.03 09:27:58 -05'00' DATE: 1/3/22
James W. Webster, Ph.D., Chief, ERRPPB

NON-CONCUR: _____ DATE: _____
James W. Webster, Ph.D., Chief, ERRPPB